AMENDMENTS TO THE CLAIMS

This listing of the claims will replace all prior versions, and listings, of claims in the application:

In the claims

1. (Canceled)

2. (New) A computer implemented method of identifying an object to be processed by one or more threads of execution comprising:

associating an output of a transport object with an input of an object;

propagating information from an input of the transport object to an output of the transport object; and

propagating the information from the output of the transport object to the object.

3. (New) A computer implemented method of identifying an object to be processed by one or more threads of execution comprising:

associating an output of a transport object with an input of an object;

propagating at least one of information concerning, dataset type, information rate or action latency, from an input of the transport object to an output of the transport object; and

propagating the information from the output of the transport object to the object.

4. (New) A computer implemented method of directing symbol substitution comprising:

associating an output of a transport object with a function descriptor object;

propagating parameter information from an input of the transport object to an output of the transport object; and

substituting an equivalent function descriptor object in place of the function descriptor object based upon the propagated parameter information.

5. (New) The computer implemented method of claim 4,

wherein the propagated parameter information includes at least one of dataset type, information rate or action latency.

6. (New) A computer implemented method of directing symbol substitution comprising:

associating an output of a transport object with a function descriptor object;

propagating parameter information from an input of the transport object to an output of the transport object; and

substituting an other function descriptor object in place of the function descriptor object based upon the propagated parameter information;

wherein for any given set or pattern of input information atoms, the function descriptor object will produce the same set or pattern of output information atoms as the other function descriptor object.

Application No.: 09/747,602   7   Docket No.: 404332000200

7. (New) A computer implemented method of directing symbol substitution comprising:

associating an output of a transport object with a function descriptor object;

propagating parameter information from an input of the transport object to an output of the transport object; and

substituting an other function descriptor object in place of the function descriptor object based upon the propagated parameter information;

wherein the function descriptor object is logically equivalent to the other function descriptor object.

8. (New) A computer implemented method of directing symbol substitution comprising:

associating an output of a transport object with a function descriptor object;

propagating parameter information from an input of the transport object to an output of the transport object; and

substituting an other function descriptor object in place of the function descriptor object based upon the propagated parameter information;

wherein a data set of the function descriptor object is equal to a data set of the other function descriptor object.

9. (New) The computer implemented method of claim 8,

wherein the propagated parameter information includes dataset type information.

Application No.: 09/747,602   8   Docket No.: 404332000200

10. (New) A computer implemented method of directing symbol substitution comprising:

associating an output of a transport object with a function descriptor object;

propagating parameter information from an input of the transport object to an output of the transport object; and

substituting an other function descriptor object in place of the function descriptor object based upon the propagated parameter information;

wherein an information rate of the function descriptor object is less than or equal to an information rate of the other function descriptor object.

11. (New) The computer implemented method of claim 10,

wherein the propagated parameter information includes information rate information.

12. (New) A computer implemented method of directing symbol substitution comprising:

associating an output of a transport object with a function descriptor object;

propagating parameter information from an input of the transport object to an output of the transport object; and

substituting an other function descriptor object in place of the function descriptor object based upon the propagated parameter information;

wherein an action latency of the function descriptor object is greater than or equal to action latency of the other function descriptor object.

13. (New) The computer implemented method of claim 12,

wherein the propagated parameter information includes action latency information.

14. (New) A computer implemented method of directing symbol substitution comprising:

associating an output of a transport object with a function descriptor object;

propagating parameter information from an input of the transport object to an output of the transport object; and

substituting an other function descriptor object in place of the function descriptor object based upon the propagated parameter information;

wherein the function descriptor object is logically equivalent to the other function descriptor object; and

wherein a data set of the function descriptor object is equal to a data set of the other function descriptor object.

15. (New) A computer implemented method of directing symbol substitution comprising:

associating an output of a transport object with a function descriptor object;

propagating parameter information from an input of the transport object to an output of the transport object; and

substituting an other function descriptor object in place of the function descriptor object based upon the propagated parameter information;

wherein the function descriptor object is logically equivalent to the other function descriptor object; and

wherein at least one of the following is true,

a data set of the function descriptor object is equal to a data set of the other function descriptor object, or

an information rate of the function descriptor object is less than or equal to an information rate of the other function descriptor object, or

an action latency of the function descriptor object is greater than or equal to action latency of the other function descriptor object.

16. (New) The computer implemented method of claim 15,

wherein the propagated parameter information includes at least one of dataset type, information rate or action latency information.

17. (New) A computer implemented method of directing symbol substitution comprising:

associating an output of a transport object with a function descriptor object;

propagating parameter information from an input of the transport object to an output of the transport object; and

substituting an other function descriptor object in place of the function descriptor object based upon the propagated parameter information;

wherein the function descriptor object is logically equivalent to the other function descriptor object;

wherein a data set of the function descriptor object is equal to a data set of the other function descriptor object,

wherein an information rate of the function descriptor object is less than or equal to an information rate of the other function descriptor object, and

wherein an action latency of the function descriptor object is greater than or equal to action latency of the other function descriptor object.

18. (New) The computer implemented method of claim 17,

wherein the propagated parameter information includes at least one of dataset type, information rate or action latency information.

19. (New) A computer implemented method of directing symbol substitution comprising:

associating an output of a transport object with a variant dataset type function descriptor object;

propagating explicit dataset type information from an input of the transport object to an output of the transport object; and

substituting at least one explicit dataset type equivalent function descriptor object in place of the variant dataset type function descriptor object based upon the propagated explicit dataset type information.

20. (New) A computer implemented method of directing symbol substitution comprising:

associating an output of a transport object with a variant dataset type function descriptor object;

propagating explicit dataset type information from an input of the transport object to an output of the transport object; and

Application No.: 09/747,602 12 Dockct No.: 404332000200

substituting at least one explicit dataset type equivalent function descriptor object in place of the variant dataset type function descriptor object based upon the propagated explicit dataset type information;

wherein the variant dataset type function descriptor object is logically equivalent to the at least one explicit dataset type equivalent function descriptor object.

21. (New) A computer implemented method of defining dataset type during synthesis of a design comprising:

associating an input of a variant transport with an upstream object in the design;

associating an output of the transport with a downstream object in the design;

propagating explicit dataset type information from the upstream object to the input of the transport;

propagating explicit dataset type information from the input of the transport to an output of the transport; and

propagating the explicit dataset type information from the output of the transport to the downstream object.

22. (New) A computer implemented method of resolving a high level design into a detailed design comprising:

associating respective output nodes of one or more variant transport objects with an equivalent function descriptor object;

associating respective information with respective input nodes of the one or more variant transport objects;

propagating the respective information from the respective input nodes of the one or more variant transport objects to respective output nodes of the one or more variant transport objects; and

substituting a less variant equivalent function descriptor object into the design in place of the variant equivalent function object based upon the respective propagated information.

23. (New) The method of claim 22,

wherein the propagated information includes dataset type information.

24. (New) The method of claim 22,

wherein the propagated information includes information rate information.

25. (New) A computer implemented method of resolving a high level design into a detailed design comprising:

creating a graphical diagram in a computer system display,

which represents an algorithm

which includes a variant equivalent function descriptor graphical object

which includes one or more variant transport graphical objects, each including an input node and an output node, and

wherein the diagram represents the variant equivalent function descriptor graphical object coupled to one or more respective output nodes of one of the one or more variant transport graphical objects;

automatically creating a design in a computer readable medium,

which corresponds to the diagram,

which includes a variant equivalent function descriptor design object that corresponds to the variant equivalent function descriptor graphical object

which includes one or more variant transport design objects that correspond to the one or more variant transport graphical objects,

wherein each variant transport design object includes an input node and an output node, and

wherein the variant equivalent function descriptor design object is coupled to one or more respective output nodes of one of the one or more variant transport design objects;

associating respective information with respective input nodes of the one or more variant transport design objects;

propagating the respective information from the respective input nodes of the one or more variant transport design objects to respective output nodes of the one or more variant transport design objects coupled to the variant equivalent function descriptor design object; and

substituting a less variant equivalent function descriptor design object into the design in place of the variant equivalent function design object based upon the propagated explicit information.

26. (New) The method of claim 25 further including:

substituting a less variant equivalent function descriptor graphical object into the diagram in place of the variant equivalent function graphical object based upon the propagated explicit information.

27. (New) The method of claim 25,

wherein the propagated information includes at least one of dataset type, information rate or action latency.